INTERNATIONAL TERMINOLOGY AND FORECAST GROUPS NOT USED IN NWS TERMINAL FORECASTS

This appendix describes terminology and code groups which are used in the international TAF code but *not used in NWS-prepared terminal forecasts*. This Appendix is included to assist in the understanding of terminal forecasts prepared by other agencies and/or countries.

1. INTERNATIONAL TAF TERMS NOT USED IN NWS-PREPARED TERMINAL FORECASTS

1.1 CAVOK. The WMO Manual on Codes states that the contraction CAVOK (pronounced KAV-OH-KAY) shall be included in place of the visibility, significant weather and cloud/obscuration groups when the following conditions are expected to exist simultaneously.

a. Visibility: 10 km or more (more than 6 statute miles);

b. No cloud below 1,500 meters (5,000 feet) or below the highest minimum sector altitude, whichever is greater, and no cumulonimbus;

(Highest minimum sector altitude is defined by ICAO as the lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 1,000 feet [300 meters] above all objects located in an area contained within a sector of a circle of 25 nautical miles [46 km] radius centered on a radio aid to navigation. In the U.S., minimum sector altitudes have been established for each airport for which instrument approach procedures have been established; the altitudes are shown on instrument approach procedure charts.)

c. No significant weather phenomena (see Appendix I)

1.2 NSC. The contraction "NSC" (meaning "no significant clouds") indicates no clouds are forecast below 5,000 feet (1,500 meters) or below the highest minimum sector altitude, whichever is greater, and no CB (any height) is expected. In applying this limitation, and when the use of neither CAVOK (see above) nor SKC would be appropriate, the term NSC could be used in non-NWS-prepared terminal forecasts.

The use of the contraction NSC is appropriate only if called for by an ICAO RAN agreement. No such RAN agreement is in effect for the United States or any of its territories or possessions. Thus, "NSC" is not used in NWS terminal forecasts.

1.3 PROBC_2C_2 GGG_eG_e in combination with BECMG and/or TEMPO. WMO TAF regulations allow the use of PROB30 or PROB40 in combination with the TEMPO group. The WMO regulations state that, when used, the PROB group is to be placed immediately before the TEMPO group and that the group GGG_eG_e is to be placed after TEMPO, for example, PROB30 TEMPO 1214 or PROB40 TEMPO 1214.

The PROBC_2C_2 group shall not be used by NWS offices as a direct modifier of the BECMG or TEMPO group(s) or with the FMGGgg group. Similarly, none of these groups may be used by NWS offices as a direct modifier of the PROB group. The reason for these prohibitions is to ensure the terminal forecast is as easy as possible to understand and correctly interpret.

1.4 Optional Groups. The optional groups (enclosed in parentheses in Appendix F) are to be used as called for by ICAO RAN agreement(s). At present, there is no requirement for the inclusion in NWS-prepared terminal forecasts of any of the optional groups. Arrangements for the issuance of optional group data as/when required will be made by NWS headquarters. (See ICAO Air Navigation Plans, documents 8733/14 and 8755/13, Part IV, Meteorology, Section 5, Forecast.) Explanations concerning the use of these optional groups follow.

1.4.1 Icing Group ($6I_ch_ih_ih_it_L$). The icing group ($6I_ch_ih_ih_it_L$) provides the means to include forecasts of layers and types of icing at or in the vicinity of an aerodrome in the terminal forecast. The group may be repeated as often as necessary to indicate more than one layer or type of icing. If the forecast thickness of the layer for any one type of forecast icing is greater than 9,000 feet (2,700 meters), the group should be repeated, and the base indicated in the second group is to coincide with the height of the top of the layer as given in the preceding group.

To explain the code: 6 is an indicator identifying the icing group; I_c is the type of forecast ice accretion on the external parts of aircraft (refer to WMO Code Table 1733, below); $h_ih_ih_i$ (refer to WMO Code Table 1690, below) is the height of the lowest level of icing, expressed in hundreds of feet/units of 30 meters above the aerodrome elevation (001 = 100 feet/30 meters); and t_L is the thickness of the layer of icing (refer to WMO Code Table 4013, at the end of this Appendix) expressed in thousands of feet/units of 300 meters.

Examples of icing forecasts in the TAF code :

630005 Forecast light icing in precipitation at or near aerodrome elevation up to 5,000 feet/1,500 meters above aerodrome elevation.

690057 Forecast severe icing in precipitation from a height of 500 feet/150 meters above aerodrome up to 7,500 feet/ 2,250 meters above aerodrome elevation.

650509 651402 Forecast 2 adjoining layers of moderate icing in cloud from 5,000 feet/1,500 meters above aerodrome elevation up to 16,000 feet/3,300 meters above aerodrome elevation. The base indicated in the second group (14,000 feet) coincides with the top of the first layer (5,000 feet + 9,000 feet = 14,000 feet).

WMO CODE TABLE 1733 (ICING)

TABLE 1733 I_c - Type of forecast ice accretion on external parts of aircraft

CODE FIGURE	DECODED
0	No icing (or trace for US Air Force terminal forecasts)
1	Light icing
2	Light icing in cloud
3	Light icing in precipitation
4	Moderate icing
5	Moderate icing in cloud
6	Moderate icing in precipitation
7	Severe icing
8	Severe icing in cloud
9	Severe icing in precipitation

WMO CODE TABLE 1690 (ICING AND TURBULENCE)

TABLE 1690 $h_Bh_Bh_B$ - Height of lowest level of turbulence
$h_ih_ih_i$ - Height of lowest level of icing

CODE FIGURE	METERS
000	< 30
001	30
002	60
003	90
004	120
005	150
006	180
007	210
008	240
009	270
010	300
011	330
etc.	etc.
099	2970
100	3000
110	3300
120	3600
etc.	etc.
990	29700
999	30,000 or more

NOTES:
(1) The code figures ($h_Bh_Bh_B$ and $h_ih_ih_i$) are direct readings in units of 100 feet (300 meters).
(2) The Code Table shall be considered as a coding device in which certain code figures are assigned values. These are discrete values, not ranges. Any observation or forecast of values to be coded in the Code Table shall be made without regard to the code table. The forecast is coded according to the following rule: if the observed or forecast value is between two of the heights as given in the table, the code figure for the lower height shall be given.

WMO CODE TABLE 4013 (ICING AND TURBULENCE)

TABLE 4013 t_L - Thickness of layer

CODE FIGURE	HEIGHT IN FEET	HEIGHT IN METERS
0	up to top of cloud	up to top of cloud
1	1000 feet	300 meters
2	2000 feet	600 meters
3	3000 feet	900 meters
4	4000 feet	1200 meters
5	5000 feet	1500 meters
6	6000 feet	1800 meters
7	7000 feet	2100 meters
8	8000 feet	2400 meters
9	9000 feet	2700 meters

NOTE: The code figure t_L is a direct reading in 1,000s of feet/units of 300 meters.

1.4.2 Turbulence Group ($5Bh_Bh_Bh_Bt_L$). The turbulence group ($5Bh_Bh_Bh_Bt_L$) provides the means to include forecasts of layers and severity/frequency of turbulence at or in the vicinity of an aerodrome in the terminal forecast. The group may be repeated as often as necessary to indicate more than one layer and/or severity/frequency of turbulence. If the thickness of the layer for any one frequency or severity of turbulence is greater than 9,000 feet (2,700 meters), the group should be repeated and the base indicated in the second group should coincide with the top of the layer as given in the preceding group.

To explain the code: 5 is an indicator identifying the turbulence group; B indicates the severity and frequency of the forecast turbulence (refer to WMO Code Table 0300, below); $h_Bh_Bh_B$ (refer to WMO Code Table 1690, shown above in Section 1.4.1, Icing) is the height of the lowest level of turbulence, expressed in hundreds of feet/units of 30 meters above aerodrome elevation; and t_L is the thickness of the layer of turbulence (refer to WMO Code Table 4013, shown above in Section 1.4.1, Icing).

Examples of turbulence forecasts in the TAF code :

530907 Forecast moderate turbulence in clear air, frequent, from a height of 9,000 feet/2,700 meters above aerodrome elevation up to 16,000 feet/4,800 meters above aerodrome elevation.

563004 Forecast severe turbulence in clear air, occasional, from a height of 30,000 feet/9,000 meters above aerodrome elevation up to 34,000 feet/10,200 meters above aerodrome elevation.

WMO CODE TABLE 0300 (TURBULENCE)

WMO CODE TABLE 0300 B - Turbulence

CODE FIGURE	DECODED
0	None
1	Light turbulence
2	Moderate turbulence in clear air, occasional
3	Moderate turbulence in clear air, frequent
4	Moderate turbulence in cloud, occasional
5	Moderate turbulence in cloud, frequent
6	Severe turbulence in clear air, occasional
7	Severe turbulence in clear air, frequent
8	Severe turbulence in cloud, occasional
9	Severe turbulence in cloud, frequent
X	Extreme turbulence*

* Turbulence in which the aircraft is violently tossed about and is practically impossible to control. It may cause structural damage.

1.4.3 Surface Temperature Group (TT_FT_F/G_FG_FZ). The surface temperature group (TT_FT_F/G_FG_FZ) provides the mechanism for including forecast temperature (T_FT_F, whole degrees Celsius) in the TAF code for specific times. One or more such groups may be used to provide, for example, forecast temperatures at certain times or to indicate expected maximum temperatures and the forecast time of occurrence.

To explain the code: T is an indicator, meaning "temperature"; T_FT_F is symbolic for the forecast temperature in whole degrees Celsius (C); G_FG_F is symbolic for the valid time to the nearest whole hour UTC of the temperature forecast; and Z is an abbreviated symbol meaning Universal Coordinated Time (UTC). Temperatures between +9°C and -9°C are to be preceded by 0; temperatures below 0°C are to be preceded by the letter M (for minus).

Examples of temperature forecasts in the TAF code :

T17/20Z - forecast temperature of 17 °C at 2000 UTC
T08/21Z - forecast temperature of 8 °C at 2100 UTC
T00/18Z - forecast temperature of 0 °C at 1800 UTC
TM10/07Z - forecast temperature of minus 10 °C at 0700 UTC

1.4.4 Lowest Altimeter Setting Group ($QNHP_IP_IP_IP_IINS$). The lowest altimeter setting group ($QNHP_IP_IP_IP_IINS$) is used to forecast the lowest altimeter setting ($P_IP_IP_IP_I$, in inches of mercury) during the initial forecast period and in each FM and BECMG group. QNH shall not be encoded in a TEMPO group.

2. TERMS OR GROUPS USED DIFFERENTLY IN NWS-PREPARED TERMINAL FORECASTS THAN IN INTERNATIONAL TERMINAL FORECASTS

2.1 Cloud Height ($h_sh_sh_s$). WMO procedures allow for the height of clouds or vertical visibility ($h_sh_sh_s$)to be forecast in hundreds of feet (units of 30 meters) above ground level, at all levels.

In NWS-prepared terminal forecasts, the resolution for forecast cloud heights is relaxed above 3,000 feet. Refer to the table in Section 7.2.7.

2.2 BECMG GGG_eG_e. The guidelines for using BECMG GGG_eG_e in the international TAF code state that the duration of the change period covered by BECMG, indicated by GGG_eG_e, should not normally exceed 2 hours and in any case should not exceed 4 hours.

In NWS-prepared terminal forecasts, the duration of the change period covered by BECMG shall never exceed 2 hours. Refer to Sections 6.7 and 7.2.9.b.